

Claim Amendments

Claims 1-49 (previously canceled).

Claims 50-57 (canceled).

Claims 58-92 (previously canceled).

93. (Previously amended) A high voltage field-effect transistor (HVFET) comprising:

- a substrate of a first conductivity type;
- an epitaxial layer of a second conductivity type disposed on the substrate;
- a diffusion region of the first conductivity type disposed in the epitaxial layer, a junction being formed between the diffusion region and the epitaxial layer;
- a drain region of the second conductivity type disposed in the epitaxial layer and separated from the junction by a portion of the epitaxial layer;
- a source region of the second conductivity type disposed in the diffusion region, the source region being spaced-apart from the junction, a channel region being formed between the source region and the junction;
- an insulated gate disposed above the channel region;
- a buried layer of the first conductivity type disposed within the portion of the epitaxial layer, the buried layer being spaced-apart from the drain diffusion region, the buried layer acting as an effective gate to control current channels formed above and below the buried layer, the current channel formed above the buried layer having an impurity concentration of approximately $1 \times 10^{12}/\text{cm}^2$.

94. (Original) The HVFET according to claim 93 wherein the buried layer is spaced-apart from the junction.

95. (Original) The HVFET according to claim 93 further comprising:
an additional buried layer of the first conductivity type disposed beneath the source region.
96. (Original) The HVFET according to claim 93 wherein the insulated gate extends laterally over the substrate from the source region to the buried layer.
97. (Original) The HVFET according to claim 96 wherein the insulated gate overlaps the buried layer.
98. (Original) The HVFET according to claim 93 wherein the buried layer extends beneath the drain region.
99. (Original) The HVFET according to claim 93 wherein the buried layer is connected to the substrate.
100. (Original) The HVFET according to claim 93 wherein the first and second conductivity types are p-type and n-type, respectively.
101. (Original) The HVFET according to claim 93 further comprising:
a source electrode connected to the source region; and
a drain electrode connected to the drain region.
102. (Original) The HVFET according to claims 93, 94, 95, 96, 97, 98, 99, 100 or 101 further comprising:
an additional diffusion region of the first conductivity type disposed in the diffusion region adjacent the source region.

103. (Previously amended) A high voltage field-effect transistor (HVFET) comprising:

- a substrate of a first conductivity type;
- an epitaxial layer of a second conductivity type disposed on the substrate;
- a drain diffusion region disposed in the epitaxial layer;
- a first region of the first conductivity type disposed in the epitaxial layer;
- a source diffusion region disposed in the first region spaced-apart from the epitaxial layer, an IGFET channel region being formed between the source diffusion region and the epitaxial layer;
- a buried region of the first conductivity type disposed within the epitaxial layer, the buried region forming conduction channels within the epitaxial layer, one conduction channel being formed above the buried region with an impurity concentration of approximately $1 \times 10^{12}/\text{cm}^2$ and another conduction channel being formed below the buried region, the buried region being spaced-apart from the drain diffusion region;
- an insulated gate formed above the IGFET channel region.

104. (Previously added) The HVFET according to claim 103 wherein the first region has a first surface that borders a surface of the epitaxial layer.

105. (Previously added) The HVFET according to claim 103 further comprising:

- a second buried region of the first conductivity type disposed beneath the source diffusion region.

106. (Previously added) The HVFET according to claim 105 wherein the second buried region extends laterally under the IGFET channel region.

107. (Previously added) The HVFET according to claim 105 further comprising a second region of the first conductivity type disposed in the first region adjacent to the source diffusion region.

108. (Previously added) The HVFET according to claim 103 wherein the buried region is connected to the substrate.

109. (Previously added) The HVFET according to claim 103 wherein the first and second conductivity types are p-type and n-type, respectively.

110. (Previously added) The HVFET according to claim 103, further comprising:
a source electrode connected to the source diffusion region; and
a drain electrode connected to the drain diffusion region.

111. (Previously added) The HVFET according to claim 110 wherein the source and drain electrodes include field plate members.